OBSERVATIONS ON THE BIOLOGY OF *ANOPLIUS FULGIDUS* CRESSON

(Hymenoptera: Pompilidae)

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In February 1953, at Ft. Sam Houston, Bexar County, Texas, a population of small bluish wasps was discovered in the vicinity of an artesian well on Salado Creek. Two females and eight males were collected and subsequently identified as *Anoplius (Anoplius) fulgidus* Cresson. The banks of Salado Creek are composed of heavy loam densely covered by herbaceous growth, mainly grass. It is a slow moving, muddy, warm water stream for the most part but the water entering from the artesian well is clear and relatively fast and it is only in this area that the wasps were found. They moved extremely rapidly, flying very near the water surface and frequently dodging in and out through the grass and other low herbage that covered the bank. From the first, it was evident that the males far outnumbered the females. The latter, when seen, were usually running over the ground near the water's edge, vigorously applying their antennae to the various objects they encountered. Dead leaves and dry reed stems seemed to have a particular attraction. One female was observed to investigate under a single leaf five times in the space of ten minutes. Whenever females appeared on the scene, the males in the vincinity became greatly agitated and often followed them along the ground, rapidly twitching their wings. Every female seen had a complement of from one to four interested males following her erratic progress along the ground and through the vegetation. In two cases, males flew down and alighted on females that were resting on vertical reed stems. One of these pairs separated immediately and the other fell or flew down among the bases of the reeds and was lost to view. In several instances females turned and drove the males off. It seems apparent that sexual activity was occuring but whetheror not coitus had taken place in the above cases was impossible to determine due to the rapidity of the insects' movements.

On February 10, at 2:10 p.m., a small female was observed dragging a spider in a dense stand of reeds about a foot offshore. The spider was gripped by the base of one of the hind legs and the wasp was slowly, laboriously towing it backwards up a nearly

vertical reed stem. Its progress was continually hampered by the front tarsi of the prey catching on the stem. At one such time, it lost its grip and the spider slid down and off into the water. After nervously running back and forth with rapid wing twitching, the pompilid flitted down and, alighting on the water, picked up the spider again by the hind leg, and returned to the stem. It then shifted its grip to the abdominal pedicel, trailing both the cephalothorax and abdomen. At 2:30 p.m. it reached a portion of the blade that had picked up some floating detritus at an earlier period of high water and deposited the spider in a shallow depression in the debris, flying off immediately thereafter. An hour later the spider was collected but subsequent examination showed no evidence of oviposition. There was a large irregular hole in the posterior portion of the cephalothorax, indicating that it may have been used for feeding purposes. Dr. W. J. Gertsch later kindly identified it as a female *Pirata sedentarius* Montgomery (Lycosidae) which he characterized *(in litt.)* as " . . . a water loving spider and quite frequently amphibious."

On February 11, another wasp was seen repeating essentially the same process, but before observation got underway the wasp flew with its prey into the dense tangled grass of the stream bank and disappeared, reappearing immediately thereafter but without the spider. A careful search of the area was made but the lost arachnid could not be located.

The actual alighting of a wasp on the water was a seemingly purposeful action and is thus of considerable interest. Later, another observer, Mr. R. Fulghum, reported seeing a female from this same population run across the water before taking flight.

Observations were made on the Salado Creek wasps whenever time permitted, for short periods at weekly intervals. No further nesting activity was noted after February 16, and females were not seen after the end of that month, although males persisted until about March 15, when they too disappeared.

The early dissipation of the population might be explained on the basis that the artesian well area was the site of emergence and that the adults were merely reluctant to leave for greener pastures. This seems unlikely, however, since apparently nesting activity was going on there and although the stream was explored

for two miles in either direction after their disappearance from the original site, not a single wasp could be found.

From the meager information available on this species, it seems that it is not often attracted to flowers. In eighteen months of collecting in the vicinity of Bexar County, Texas by several persons, a number of species of *Anoplius* (sensu lato) were taken on the blossoms of many plants, especially the suffrutescent species and more particularly *Condalia, Colubrina* and *Baccharis* but *Anoplius (A.) fulgidus* was conspicuous by its absence. The few specimens taken by the author at Santa Elena Canyon, Big Bend National Park, Texas, were collected on a bare sand-mud bank along the Rio Grande River. Of the 52 specimens seen by Evans (1951:341), one female, taken at Limpia Canyon, Jeff Davis County, Texas (by that author) was on flowers of *Baccharis glutinosus*.

It is interesting to note that although its morphological pattern suggests a close relationship with *virginiensis* Cresson, in habitat preference at least, *fulgidus* seems to show affinities with *ithaca* (Banks) and *depressipes* (Banks). Information on the biologies of these related species is given by Evans (1948, 1949), Rau (1934), and Caudell (1922).

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